



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,217	03/29/2001	Ha Zoong Kim	0465-0751P-SP	2187
2292	7590	10/17/2003	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			GUERRERO, MARIA F	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 10/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/820,217

Applicant(s)

KIM, HA ZOONG

Examiner

Maria Guerrero

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-8 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-8 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment filed September 4, 2003.

Claims 1-4 and 9 are canceled.

Claims 5-8 and 10-12 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jwo (U.S. 6,156,596) in view of Hirabayashi (U.S. 5,614,445) and Applicant admitted prior art.

Jwo teaches preparing a semiconductor substrate of a first conductivity type, forming scribe lanes in the semiconductor substrate of a first conductivity type to define chip formation areas, and forming a deep well area in each chip formation area (Fig. 2-4A, col. 1, lines 13-25, col. 2, lines 25-28, col. 3, lines 5-10). Jwo discloses the deep well area having a second conductivity type opposite the first conductivity type (Fig. 4A,

Art Unit: 2822

col. 3, lines 4-10). Jwo shows the first conductivity type being N-type and the second conductivity type being P-type (Fig. 2 and 4A). Jwo teaches the scribe lanes containing only an unetched portion of the semiconductor substrate (Fig. 4A-4C, col. 2, lines 55-67). Jwo discloses the deep well area having a first conductive area and a second conductive area (Fig. 4A, col. 2, lines 25-31). Jwo teaches the scribe lanes surrounding the chip formation areas (Fig. 1-2, 4A).

Regarding claims 5-8 and 10-12, Jwo does not specifically show forming at least one well area within the deep well area. Jwo does not specifically show the mask being formed during the formation of the deep well areas and removing the mask using plasma. Jwo does not specifically show the first conductivity type being p-type and the second conductivity type being n-type conductor. However, Jwo discloses the deep well area having a first conductive area and a second conductive area (Fig. 4A, col. 2, lines 25-31). Jwo teaches employing a mask to protect the scribe lane area from being etched (Fig. 4A, col. 2, lines 60-67). In addition, Hirabayashi teaches preparing a semiconductor substrate of a first conductivity type, forming scribe lanes in the semiconductor substrate to define chip formation areas, and forming a deep well area in each chip formation area (Fig. 1-4, 6-12, col. 4, lines 40-60).

In addition, Hirabayashi discloses the deep well area having a second conductivity type opposite the first conductivity type, forming at least one well area within the deep well area, and forming a first and a second conductivity type well areas within the deep well area (Fig. 3-4, 11-12, col. 6, lines 5-25). Hirabayashi shows the first conductivity type being P-type and the second conductivity type being N-type (Fig. 3-4, 11-12). In

Art Unit: 2822

addition, Hirabayashi teaches the use of the plasma processing as conventional in the art (col. 4, lines 65-67). Hirabayashi shows forming a mask during the formation of the deep well areas (Fig. 3, 11, col. 6, lines 5-10).

Furthermore, Applicant admitted prior art shows selectively forming n-type deep well on a p-type substrate and forming a p-type well within the n-type deep well (Fig. 1, page 1). Applicant admitted prior art teaches employing n-type substrate or p-type substrate as well known in the art (page 3, lines 20-23). Applicant admitted prior art also discloses using plasma equipment to remove photoresist as conventional in the art (page 2, lines 10-15).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to recognize that Hirabayashi and Applicant admitted prior art teachings could be incorporated in Jwo's process because a mask selectively process is required in order to produce the well area disclosed by Jwo. The modification would provide a process that would avoid defects on the chips, the process would be applied to n-type or p-type substrates during fabrication of CMOS devices, and would prevent leakage (Jwo, col. 1, lines 39-50, col. 2, lines 10-22, col. 3, lines 50-62; Hirabayashi, col. 4, lines 38-46).

Response to Arguments

4. Applicant's arguments with respect to claims 5-8 and 10-12 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2822

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kim et al. (U.S. 6,159,826) (of record) has not been disqualified as prior art under 35 U.S.C. 103 (c) because the reference also qualified under 35 U.S.C. 102(a). Kim et al. (U.S. 6,159,826) has a publication date (December 12, 2000) earlier in time than the effective filing date of the application (March 29, 2001) (no translation of the foreign document has been filed), and it is not applicant's own work. If the subject matter qualifies as prior art under any other subsection (e.g., subsection 35 U.S.C. 102(a)) it will not be disqualified as prior art under 35 U.S.C. 103(c). See MPEP § 706.02(I).

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2822

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 703-305-0162.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Maria Guerrero
Maria Guerrero
Patent Examiner
October 9, 2003